

ABSTRACT OF THE DISCLOSURE

A semiconducting gas sensor includes a gas-sensitive layer, a heater for heating the layer to a defined measuring temperature, and contact electrodes for measuring the electrical resistance of the gas-sensitive layer enclosed within a microchamber, in which the gas-sensitive layer is arranged. The chamber can be sealed from the outside, and is constructed so that the chamber volume is small enough to allow at least one component of the gas or gas mixture that is to be analyzed to be at least largely exhausted via conversion on the gas-sensitive layer, within a predetermined measuring interval. With the limited gas store and the conversion of a component of the gas during the measurement process, gases or gas mixtures comprising several components can be analyzed. In this, the measuring signal is reexamined following the conversion of at least one component. Within the chamber, several sensor elements may be arranged with gas-sensitive layers, and may be operated at different temperatures. One gas sensor system, for example, is comprised of at least two semiconducting gas sensors having microchambers, which are arranged within a system of gas lines and valves, and can be filled individually.

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